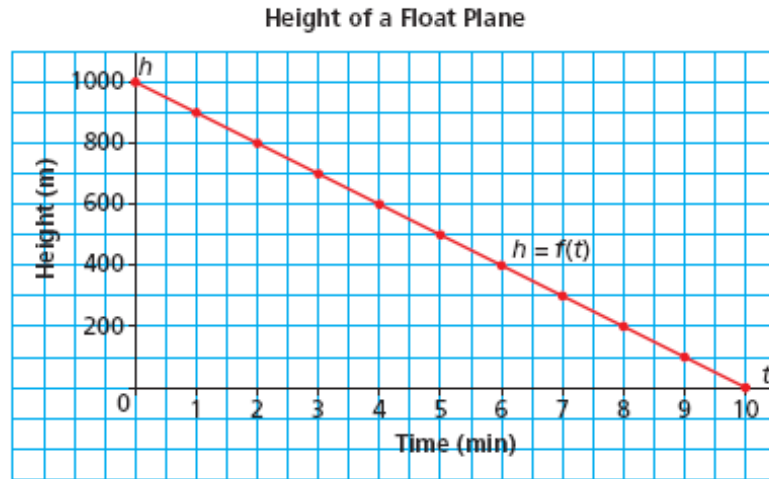


3.7 Interpreting Graphs of Linear Functions

Make Connections

Float planes fly into remote lakes in Canada's Northern wilderness areas for ecotourism. This graph shows the height of the float plane above a lake as the plane descends to land.



Where does the graph intersect the vertical axis? What does this point represent?

Where does the graph intersect the horizontal axis? What does this point represent?

What is the rate of change for this graph? What does it represent?

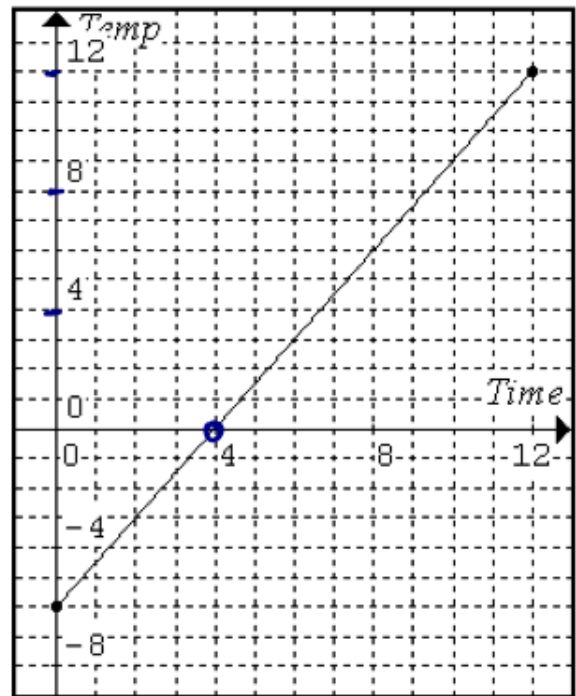
X & Y Intercepts

- Any linear relation is a function, except for _____ lines.
- A linear function usually has two **intercepts** (*mark or cut off*):

Example 1: Find the intercepts, domain and range of a graph.

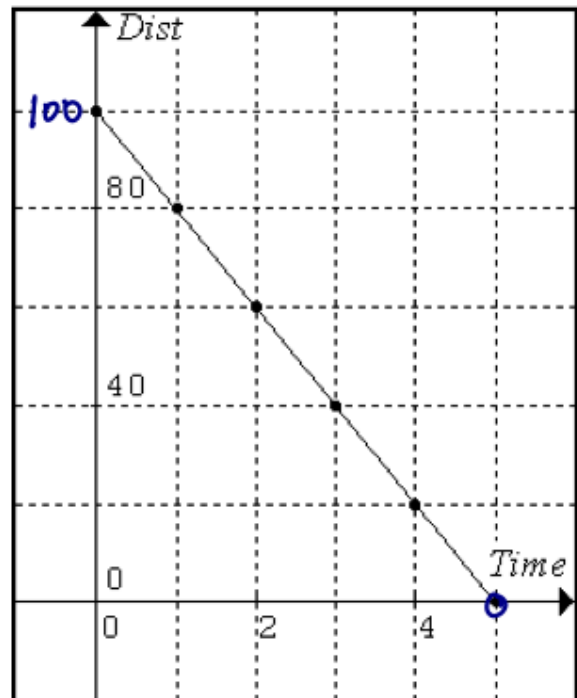
This graph shows the temperature in Vancouver over a 12 hour period starting at midnight during February.

- a) Find the horizontal intercept (x-intercept). What does it represent?
- b) Find the vertical intercept (y-intercept). What does it represent?
- c) Find the Domain and Range.



You Try: This graph shows a person's distance from the finish line in a bike race.

- a) Find the x-intercept. What does it represent?
- b) Find the y-intercept. What does it represent?
- c) Find the Domain and Range.



Sometimes it is difficult to read the exact intercepts off of the graph. If we know the equation of the linear relation, we can use an **algebraic approach** to help us.

Here is the graph of $y = 2x - 3$.

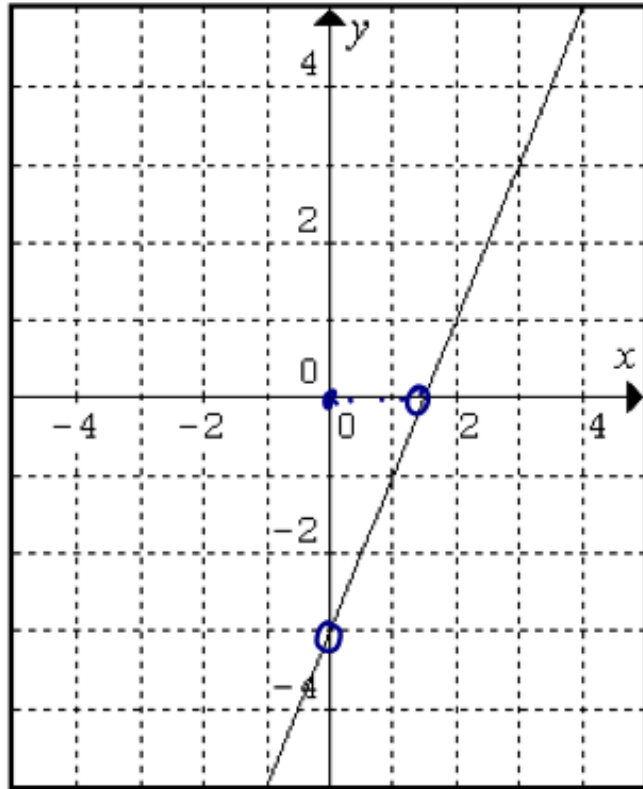
Q: What is the y-value when the graph intersects the x-axis?

So, let's substitute $y = \underline{\hspace{2cm}}$ into $y = 2x - 3$ and solve for x

Now:

Q: What is the x-value when the graph intersects the y-axis?

So, let's substitute $x = \underline{\hspace{2cm}}$ into $y = 2x - 3$ and solve for y.



Try: Find the x- and y-intercepts of the linear function $y = 2x + 4$ by using the algebraic approach.

Use the intercepts to graph the function

Practice (Pg 319)-# 4, 6, 7,8, 10, 13, 18

